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**HIGH PRESSURE MERCURY VAPOR LAMP**

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Creator	Arinobu Nakamura c/o NEC Corporation 2 Umeda, Kita-ku, Osaka
Applicant	NEC Corporation 2 Umeda, Kita-ku, Osaka
Representative	Sadaharu Numata
Attorney	Haruo Kurita

**BRIEF EXPLANATION OF THE DRAWINGS**

FIG. 1 is a front view of an essential part in one embodiment of the present device, and Fig. 2 is an enlarged cross

## DETAILED DESCRIPTION OF THE DEVICE

The present device relates to a structure of a sealing part in a quartz bulb of a high-pressure mercury vapor lamp. The object of the present device is to prevent breakdown of a sealing ribbon and to facilitate a sealing process.

Generally, in a process of sealing a luminous bulb, such as a bulb made of quartz, of a high-pressure mercury vapor lamp, a mount having a sealing ribbon, an electrode rod, a lead and the like which are welded thereto is fixed to a sealing device in advance. Thereafter, an edge-sealing portion of the quartz bulb is calcinated with a burner and sealed by pinching with a pair of pinching molds. However, if the bulb is over-calcinated in the calcinating process, quartz in a softened state will flow out of the pair of pinching molds in the pinching process. As a result, forces of mutually opposite directions will act at welded points between the electrode rod and the sealing ribbon and between the sealing ribbon and the lead and tensile stress acts on the sealing ribbon having at both sides thereof the welded points, thereby causing the loosening off of the welded parts or breakdown of the sealing ribbon. On the other hand, insufficient calcination will leads to insufficient pinching and the creation of defective adhesion

constantly maintaining an excellent calcinating condition in

the sealing process of the quartz bulb. Generally however, the thickness of the quartz bulb varies severely and control of the calcinating condition such as the calcinating time is difficult. Thus, automation of the sealing process has been extremely difficult.

The present device is made in views of the above problems, and one embodiment is described as follows according to the drawing. A mount, to which an electrode rod 4 to which an electrode 3 is mounted beforehand, a sealing ribbon 5 and a lead 6 are welded, is fixed to an appropriate point of a sealing part 2 of a bulb 1, and then the bulb is calcinated. The mount is pinched using a pair of pinching molds having cavities so that ribs 7, 8 and 9 having appropriate width and length are respectively formed at the welded point between the electrode rod 4 and the sealing ribbon 5 on the welded point between the sealed ribbon 5 and the lead 6 and a point that approximately corresponds to the center of the sealing ribbon 5, at about a right angle with a longitudinal direction of the sealing ribbon. The ribs 7, 8 and 9 function as buffers for preventing quartz in the softened state from flowing in directions of A and A' as shown in Fig. 1. In detail, since the ribs function to decrease the force acting in the directions of A and A' in such

the sealing process, the stress of the quartz in the softened state can be reduced. Therefore, the tensile stress of the sealing ribbon can

be relaxed.

Moreover, the rib 8 is formed to prevent the breakdown of the sealing ribbon which receives the least tensile stress in the mount, and the ribs 7 and 9 are formed to prevent of the welded points that receive severe pushing force caused by the flow of the quartz in the softened state and less tensile stress.

Provision of the ribs according to the present device enables to prevent the disconnection and to loosen the calcinating conditions in the sealing process of the quartz bulb which have conventionally been tightly restricted for preventing such disconnection. Hence, the sealing process can be carried out for a same calcinating time period even if the thickness of the bulb varies to some extent. As a result, various effects can be achieved such as facilitation of automation of the sealing process and great decrease in the number of steps.

#### SCOPE OF CLAIM OF UTILITY MODEL REGISTRATION

A high-pressure mercury vapor lamp comprising a luminous bulb having ribs respectively formed at points corresponding to an approximate center of a sealing ribbon of a pinching/sealing part, portions of the sealing ribbon connected

## 高圧水銀蒸気放電灯

実 願 昭 39-31921  
出 願 日 昭 39. 4. 24  
考 案 者 中村有伸  
大阪市北区梅田2新日本電気株式会社内  
出 願 人 新日本電気株式会社  
大阪市北区梅田2  
代 表 者 沼田貞治  
代 理 人 弁理士 栗田春雄

## 図面の簡単な説明

第1図は本案に係る一実施例の要部正面図、第2図は第1図A-A'線に沿う封止部の拡大断面図である。

## 考案の詳細な説明

本案は高圧水銀過気放電灯の石英バルブ封止部の構造に関するもので、封入リボンの破断を防止し封止作業を容易にすることを目的とするものである。

一般に高圧水銀蒸気放電灯の発光管となる例えば石英製のバルブを封止せる場合、予め封止装置に封入リボン、電極ロッド及び導線等を溶接したマウントを固定し、石英バルブの端部封止位置をバーナーにて焙焼し1対の圧搾成型型にて圧潰して封止する。しかしてバルブ焙焼時焼過ぎると軟化状態の石英が圧搾に際して1対の圧搾成型型から外方に流動するため、電極ロッドと封入リボンとの溶接部および封入リボンと導線との溶接部に互に反対方向の力が作用し且つ両端に溶接部をもつ封入リボンには張力が働くから溶接はずれあるいは封入リボンの断線事故を起す。又焼不足の場合は圧搾が不十分になり易く封入リボンにそつて密着不良部分が生ずる結果完成した石英バルブで

の肉厚の変動が大きく且つ焙焼時間の如き焙焼条件の管理が困難であるため封止作業の自動化は従来非常に困難であつた。

本案はかかる点に鑑み提案されたもので、一実施例を図面により説明すれば、バルブ1の封止部2の適当な位置に予め電極3を取付けた電極ロッド4と封入リボン5と導線6とを溶接したマウントを固定配置してバルブを焙焼し、前記電極ロッド4と封入リボン5、または封入リボン5と導線6との各溶接点上及び封入リボン5のほぼ中心上に対応する位置に封入リボン長さ方向に略直交し各々適当なる幅と長さを持つたリブ7, 8, 9を形成するように凹部を設けた一対の圧搾成型型により圧搾封止する。リブ7, 8, 9は軟化状態の石英が第1図に示すA, A'方向に流動するのを防ぐ緩衝部として作用する。即ち軟化状態の石英が外方に流動し主として導線6と電極ロッド4の端面を外方へ押圧して相対するA, A'方向に働く力を減ずる作用をするから封入リボンの引張応力を緩和することができる。

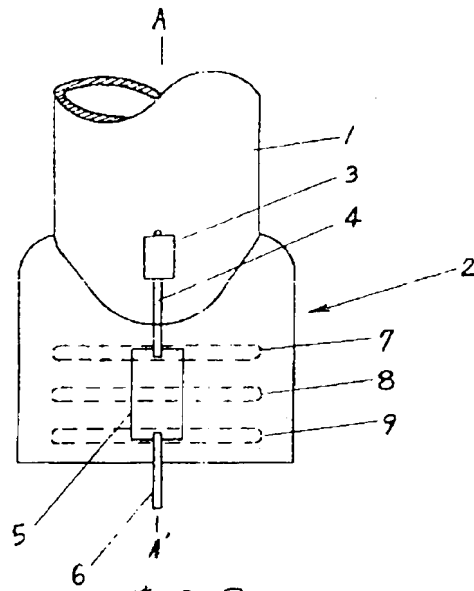
而してリブ8はマウント部で引張応力の最も小さい封入リボンの破断を防ぐためにまたリブ7, 9は軟化状態の石英の流動で押圧力が強く働き且つ引張力応の小さい溶接個所の溶接はずれを防ぐために夫々形成されるものである。

本案は、前述の如くリブを設けることにより断線事故が防止できるとともに断線事故防止のため著しく制限されていた従来の石英バルブ封止時に於ける焙焼条件の許容範囲を広げることが可能としたからバルブ肉厚が多少変化しても同一焙焼時間で封止作業ができるため封止作業の自動化が容易となり工数はこれを大きく削減できる等各種の効果を奏する。

## 実用新案登録請求の範囲

圧搾封止部の封入リボンの略中央と該リボンが夫々電極ロッド並に導線と接続される部分とに封入リボンの略中央と該リボンが夫々電極ロッド並に導線と接続される部分とに

第 1 圖



第 2 圖

